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FACTORS AFFECTING AVIAN USE OF RIPENING SUNFLOWER FIELDS

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Introduction

In 1990, North Dakota's breeding blackbird population was estimated at more than 2.3 million pairs (Nelms et al., 1994). Sunflower has become an important part of these birds' diet from July-October, and damage due to blackbirds has been estimated at $4-11 million (Linz et al., 1993). This problem has led to the use of various methods to control blackbird damage. Concern has been raised, however, on how some of these control methods may be affecting non-target birds. Thus, we initiated a study on the use of the sunflower fields by non-blackbird species.

Methods

During the fall of 2000, twelve fields in Stutsman and Barnes counties in east-central North Dakota were used to assess the presence of non-target birds. Ten census points were laid out in each field. Censusing began within 15 minutes of sunrise. A 6-foot stepladder was used to aid in seeing over the sunflowers. A two-minute quiet period was used to allow disturbance to settle after reaching the census point, followed by an eight-minute count period. All birds were identified to species, sex, and age if possible. The location of each bird detected was recorded, including habitat type, direction, and distance from the census point. Distance was determined to the nearest 5m within 25m, while distances beyond 25m were recorded as 25-50m or over 50m. All birds flying over the plots were also recorded. Vegetation data were collected around each census point. Aerial photos of the fields and the surrounding area were taken, and a GIS program was used to quantify the habitat in and around the study fields.

Results

Each of the 12 fields was visited 7 times from late August to early October, for a total of 84 field censuses. A total of 82 non-blackbird species was observed, of which 49 were observed in sunflowers or foraging in flight over sunflowers. Of those 49 species, 30 were seed-eaters (Figure1). While non-blackbirds were present throughout the study, they reached their highest numbers in late September, during migration (Figures 2 and 3).

Initial exploration of the data using the habitat figures produced by GIS also suggested a possible relationship between the surrounding habitat and the species seen in some of the fields. Pearson correlation coefficients were calculated for number of birds seen within 25m of a census point, against each habitat type by its proportion of the total area within 0.5 miles of the field (Figure 4). Some less common species were lumped by foraging group (insect- or seed-eating).

Further work will be done using the census data, vegetation data, and habitat figures to determine factors affecting avian presence in the sunflowers.

Acknowledgements

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Literature Cited

Linz, G. M., R. A. Dolbeer, J. J. Hanzel, and L. E. Huffman. 1993. Controlling blackbird damage to sunflower and grain crops in the northern Great Plains. U.S. Dept. of Agric., Animal and Plant Health Inspection Service, Agriculture Information Bull. No. 679.

Nelms, C. O., W. J. Bleier, D. L. Otis, and G. M. Linz. 1994. Population estimates of breeding blackbirds in North Dakota, 1967, 1981-1982, and 1990. Am. Midl. Nat. 132:256-263.

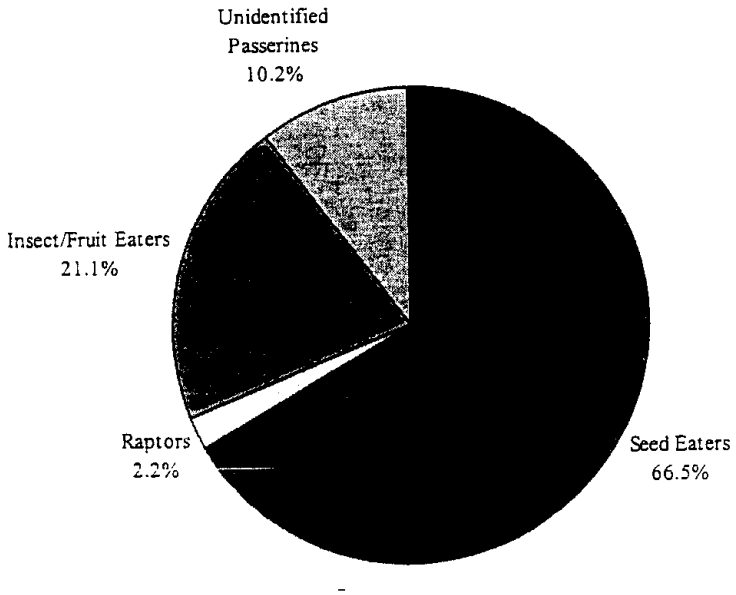


Figure 1. Foraging groups as a percentage of total non-blackbirds seen in ripening sunflower fields

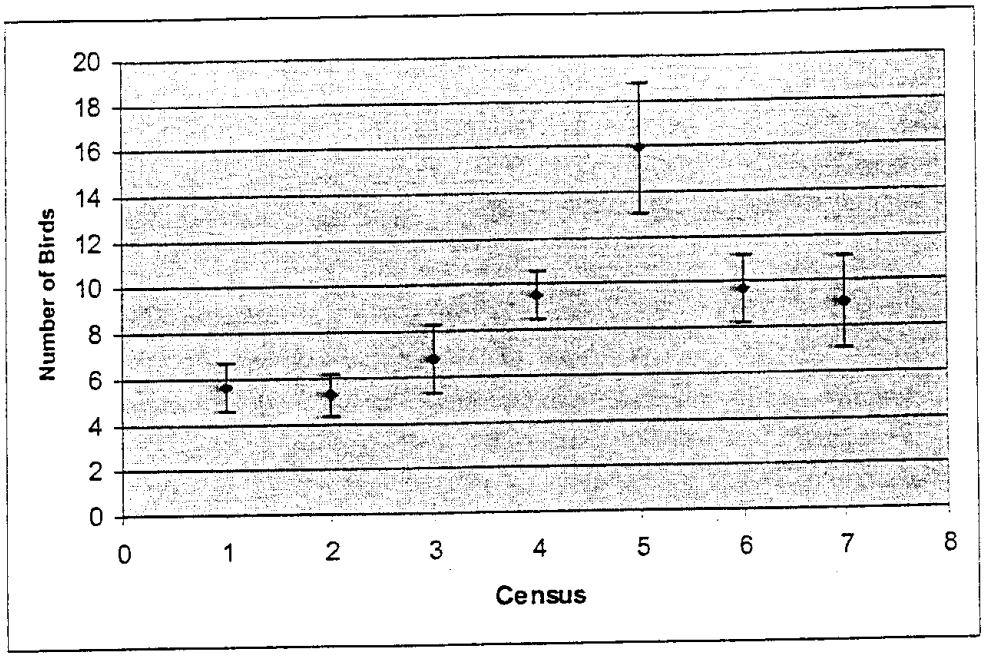


Figure 2. Mean and standard error by census for birds seen in the sunflowers within 25m of census points

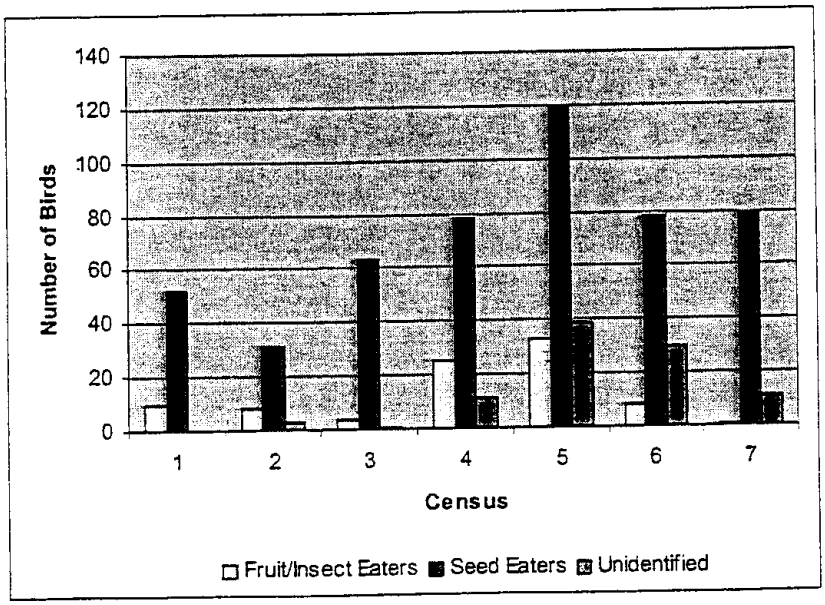
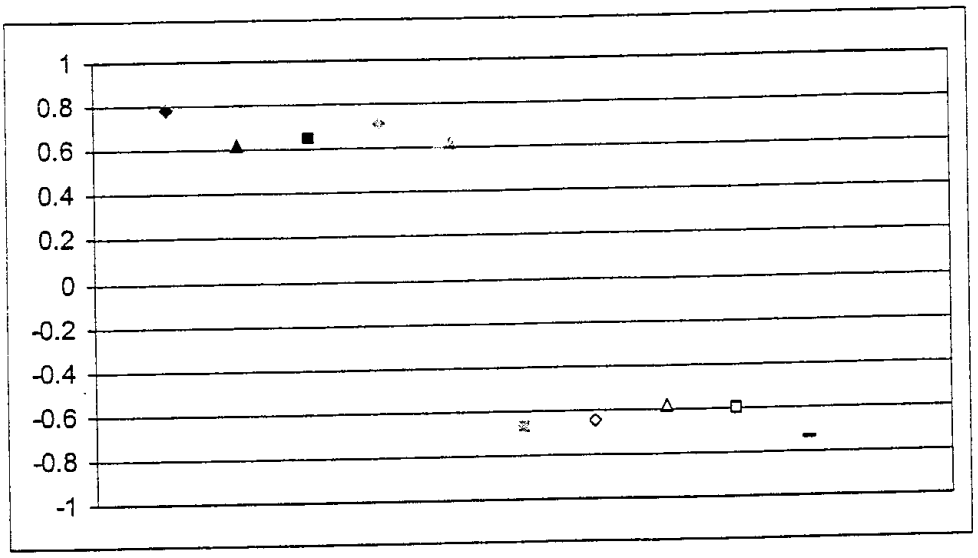


Figure 3. Total number of birds seen within 25m of a census point during seven censuses. Census 1: August 22-August 30; Census 2: August 29-September 6; Census 3: September 4-September 12; Census 4: September 12-September 19; Census 5: September 18-September 27; Census 6: September 27-October 5; Census 7: October 4-October 11.



◆ Grass/hay:Insectivores p=0.003

▲ Beans:Non-sparrow Seed-eaters p=0.03

■ Farmyards:American robin p=0.02

Grass:Savannah sparrow p=0.01

Grass/hay:Song sparrow p=0.03

Roads:Insectivores p=0.02

◇ Grain:Clay-colored sparrow p=0.02

△ Wetland:Myrtle warbler p=0.05

□ Grass/hay:Myrtle warbler p=0.04

– Roads:Savannah sparrow p=0.01

Figure 4. Significant Pearson correlation coefficients calculated for birds seen within 25m of a point against habitat around the field (n=12)

Proceedings of the 24th

SUNFLOWER RESEARCH WORKSHOP

January 17-18, 2002

Sponsored by:

National Sunflower Association

The 2001 Sunflower Research Workshop, sponsored by the National Sunflower Association, took place on January 17 and 18, 2002, at the Ramada Plaza Suites, Fargo, ND. The workshop was very well attended and received by public and private researchers from the United States and Canada, as well as other interested parties.

This volume contains nearly all the presentations given at the 2001 workshop. Some of the papers are summarized or abstract form.

The National Sunflower Association would like to extend its appreciation to those presenting papers/posters at this annual Sunflower Research Workshop and to those who participated by their attendance and questions. Special thanks are extended to the NSA Research Forum Planning Committee, Dr. Gary J. Brewer, NDSU, Dr. Laurence D. Charlet, USDA-ARS and Pat Duhigg, Seeds 2000. Thanks also to Gerald Seiler, USDA-ARS-NCSL, Burton Johnson, NDSU, and Bob Benson, Mycogen Seeds for their expertise in moderating the workshop sessions.

Questions regarding these proceedings may be directed to the National Sunflower Association, 4023 State Street, Bismarck, ND 58503.

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